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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Mark Thomas Johnson

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EXAMINER

CARTER III, ROBERT E

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/556,451	Applicant(s) JOHNSON ET AL.	
	Examiner ROBERT E. CARTER III	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 November 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 1-3 are rejected under 35 U.S.C. 102(a) as being anticipated by Gleason (US Patent # 6,392,617).

As for claim 1, Gleason teaches:

A display screen (Col. 5, lines 15-24) comprising a plurality of cells (Fig. 3), each cell comprising: a pixel (Fig. 3, #312) for generating light (Fig. 3, #314) when driven by an electrical signal (Fig. 3, Vled); a driver circuit (Fig. 3, # 308) for providing the electrical signal; and a photosensitive device (Fig. 3, #316) for receiving optical display signals (Fig. 3, #318) to control the pixel via the driver circuit (Col. 6, lines 19-22).

As for claim 2, Gleason teaches:

the driver circuit comprising a drive transistor (Fig. 3, #308) having a control terminal and a first and a second main terminal (these features are clearly visible in Figure 3), each cell further comprising a storage capacitor (Fig. 3, #310) having a first and a second terminal (these features are clearly visible in Figure 3) and being coupled in parallel to the photosensitive device (In Figure 3 of Gleason, the storage capacitor 310

is clearly coupled in parallel to the photosensitive device 318), *the first terminal of the storage capacitor being coupled to the control terminal of the drive transistor* (In Figure 3 of Gleason, the first terminal of the storage capacitor 310 is clearly coupled to the control terminal of the drive transistor 308), *and the first main terminal of the drive transistor being coupled to the pixel* In Figure 3 of Gleason, the first main terminal of the drive transistor 308 is clearly coupled to the pixel 314).

As for claim 3, Gleason teaches:

each cell further comprising a storage reset switch (Fig. 3, #306) coupled to the first terminal of the respective storage capacitor (In Figure 3 of Gleason, the storage reset switch 306 is clearly coupled to the first terminal of the storage capacitor 310) *to provide a storage reset voltage (Data) at the first terminal of the respective storage capacitor.*

3. Claims 1-3 and 6 are rejected under 35 U.S.C. 102(a) as being anticipated by Shannon (WIPO publication # WO01/20591).

As for claim 1, Shannon teaches:

A display screen (Fig. 1) comprising a plurality of cells (Fig. 1, #10), each cell comprising: a pixel (Fig. 3, #20) for generating light (Page 9, lines 8-9) when driven by an electrical signal [Fig. 3, VD(+VE)]; a driver circuit (Fig. 3, #22) for providing the electrical signal; and a photosensitive device (Fig. 3, #38) for receiving optical display signals (Page 13, lines 2-5) to control the pixel via the driver circuit (Page 13, lines 25-29).

As for claim 2, Shannon teaches:

the driver circuit comprising a drive transistor (Fig. 3, #22) having a control terminal and a first and a second main terminal (these features are clearly visible in Figure 3), each cell further comprising a storage capacitor (Fig. 3, #36) having a first and a second terminal (these features are clearly visible in Figure 3) and being coupled in parallel to the photosensitive device (In Figure 3 of Shannon, the storage capacitor 36 is clearly coupled in parallel to the photosensitive device 38), the first terminal of the storage capacitor being coupled to the control terminal of the drive transistor (In Figure 3 of Shannon, the first terminal of the storage capacitor 36 is clearly coupled to the control terminal of the drive transistor 22 at node 24), and the first main terminal of the drive transistor being coupled to the pixel (In Figure 3 of Shannon, the first main terminal of the drive transistor 22 is clearly coupled to the pixel 20).

As for claim 3, Shannon teaches:

each cell further comprising a storage reset switch (Fig. 3, #26) coupled to the first terminal of the respective storage capacitor (In Figure 3 of Shannon, the storage reset switch 26 is clearly coupled to the first terminal of the storage capacitor 36) to provide a storage reset voltage (VA) at the first terminal of the respective storage capacitor.

As for claim 6, Shannon teaches:

the second main terminal of the drive transistor and the second terminal of the storage capacitor of each cell being coupled to a first supply voltage (In Figure 3 of Shannon,

the second terminal of the storage capacitor 36 and the second main terminal of the drive transistor 22 are clearly coupled to the supply voltage on supply line 32).

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 1 and 9-10 are rejected under 35 U.S.C. 102(e) as being anticipated by Allen et al. (US Patent # 6,680,579).

As for claim 1, Allen et al. teaches:

A display screen (Fig. 6) comprising a plurality of cells (Fig. 6, #82, 84, 86, Fig. 7, #102, 104), each cell comprising: a pixel (Fig. 7, # 110) for generating light (Col. 5, lines 22-24, 53-54) when driven by an electrical signal (Fig. 7, #106); a driver circuit (Fig. 7, #116) for providing the electrical signal; and a photosensitive device (Fig. 7, #112) for

receiving optical display signals (Col. 5, lines 49-50) to control the pixel via the driver circuit (Col. 5, lines 50-53).

As for claim 9, Allen et al. teaches:

A display screen having a front side for delivering light generated by each pixel of the plurality of cells, each photosensitive device of the plurality of cells being adapted to receive the optical display signals from a source positioned at a side of the screen facing away from the front side (Fig. 4, Col. 3, lines 44-59).

As for claim 10, Allen et al. teaches:

each photosensitive device of the plurality of cells being adapted to receive optical display signals of non-visible light (Col. 5, lines 34-48).

6. Claims 1 and 11-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Anderson et al. (US Patent # 7,061,480).

As for claim 1, Anderson et al. teaches:

A display screen (Fig. 1, #32) comprising a plurality of cells (Fig. 1, #30), each cell comprising: a pixel (Fig. 5, #76) for generating light (Fig. 5, #40) when driven by an electrical signal (Fig. 5, VB+); a driver circuit (Fig. 5, #72) for providing the electrical signal; and a photosensitive device (Fig. 5, #68) for receiving optical display signals (Fig. 5, #28) to control the pixel via the driver circuit (Col. 5, lines 4-9).

As for claim 11, Anderson et al. teaches:

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A display system (Fig. 1, # 20) comprising a display screen as claimed in claim 1, and an optical image source (Fig. 1, #26) for transmitting optical display signals (Fig. 1, #28) to each photosensitive device of the plurality of cells.

As for claim 12, Anderson et al. teaches:

the optical image source being selected from a projection device (Col. 1, lines 13-14, Col. 1, line 66 - Col. 2, line 3) and a laser scanner (Col. 2, Lines 16-21).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gleason (US Patent # 6,392,617).

As for claim 4, Gleason teaches:

the second main terminal of the drive transistor of each cell being coupled to a first supply voltage (ground), and the second terminal of the storage capacitor being coupled to a reference voltage (ground)

Gleason does not teach the first supply voltage being different from the reference voltage.

However, prior art figures 1 and 2 of Gleason teach that the order of the pixel and the drive transistor can be swapped by simply changing the NMOS transistors of figures 2 and 3 to PMOS transistors, as shown in figure 1 (Col 1, lines 57-65).

By modifying figure 3 of Gleason in this manner, the second terminal of the drive transistor is now coupled to Vled, the first main terminal of the drive transistor is now coupled to one electrode of the pixel, and the other electrode of the pixel is now coupled to ground.

The modified figure 3 of Gleason teaches all the limitations of claim 4 as follows:

the second main terminal of the drive transistor of each cell being coupled to a first supply voltage (Vled), and the second terminal of the storage capacitor being coupled to a reference voltage (ground) different from the first supply voltage.

At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to connect the second main terminal of the driving transistor to Vled and the pixel to ground because applicant has not

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disclosed that connecting the second main terminal of the driving transistor to Vled and the pixel to ground provides an advantage, is used for a particular purpose, or solves a stated problem. Furthermore, one of ordinary skill in the art would have expected Applicant's invention to perform equally well with either the second main terminal of the driving transistor connected to ground and the pixel connected to Vled, or the claimed connection of the second main terminal of the driving transistor to the first supply voltage (Vled), being different from the reference voltage (ground), because both perform the same function of controlling the signal (Vled) to the pixel with the driving transistor.

Therefore, it would have been an obvious matter of design choice to modify figure 3 of Gleason to obtain the invention as specified in claim 4.

As for claim 5, Gleason teaches:

each storage reset switch of the plurality of cells being arranged to be operated according to a sequence of: activating the storage reset switch for providing the storage reset voltage at the first terminal of the respective storage capacitor (Fig. 7, # 702); and deactivating the storage reset switch for enabling the respective photosensitive device (Fig. 7, #706) to discharge the respective storage capacitor in dependence on the optical display signals (Fig. 7, #708).

10. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shannon (WIPO publication # WO01/20591) in view of Kasai (US Publication # 2002/0050962).

As for claim 7, Shannon teaches all the limitations of claim 6.

Shannon does not teach the display screen having a pixel switch.

In the same field of endeavor (i.e. active matrix EL displays) Kasai teaches:

A display screen (Figs. 15-17, #100) having a pixel switch (Fig. 2, #20, Fig. 7, #20-1) coupled to each pixel (Fig. 2) of a number of the plurality of cells to constitute a group of cells (Fig. 7, #1-11, 1-12) and to alternately couple each pixel of the group of cells to a second supply voltage (Fig. 7, Vcc) for turning off the pixel [0058] and to a third supply voltage (ground) for enabling the pixel to generate light [0058].

This concept taught by Kasai is easily applied to Shannon with obvious modification. By placing the switch between the pixel 20 and the supply voltage VD(+ve), where the switch selects either VD(+ve) to enable the pixel to generate light, or ground to turn off the pixel.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the display screen of Shannon with the pixel switch which enables and disables the pixel of Kasai, to prolong service life of the EL element without increasing power consumption (Kasai, [0094]).

As for claim 8, Shannon as modified by Kasai teaches:

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each storage reset switch of the group of cells and the pixel switch being arranged to be operated according to a sequence of: coupling each pixel of the group of cells via the pixel switch to the second supply voltage (Kasai, Fig. 6(C), TB, [0081]) and activating each storage reset switch of the group of cells for providing the storage reset voltage at the first terminal of the respective storage capacitor (Kasai, Fig. 6(C), TW, [0081], Shannon, Page 13, lines 12-20); deactivating each storage reset switch of the group of cells for enabling the respective photosensitive device coupled to the respective storage capacitor to discharge the respective storage capacitor in dependence on the optical display signals (Shannon, Page 13, lines 17-29); and coupling each pixel of the group of cells via the pixel switch to the third supply voltage (Kasai, Fig. 6(C), TH, [081]).

Conclusion

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Koll et al. (US Patent # 7,057,583) discloses a light addressed display system.

Da Cunha et al. (US Publication # 2003/0193485) discloses a projector an laser addressed active display system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT E. CARTER III whose telephone number is (571)270-3006. The examiner can normally be reached on M-F.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on 571-272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sumati Lefkowitz/
Supervisory Patent Examiner, Art Unit 2629

/R.E.C./